REMARKS

Amendments to the Specification

The Specification has been amended to include the description on hydrophobic surface of the support (or substrate) from the earlier application Serial No. 08/261,388, which the instant application claims priority of and is incorporated by reference in the instant application. *See* page 1, first paragraph of the instant specification. No new matter is introduced into the original application as filed through this amendment.

In addition, Applicants note that the same amendment was made in the earlier application Serial Nos. 08/688,488 (issued as U.S. Pat. No. 7,323,298) and 08/514,875 (now allowed).

Claim Status

Claims 7, 21, 34 and 36 have been amended to define a hydrophobic coating or surface material upon which the DNA sequences (or probes) are spotted. Such amendments are supported by the description on page 9, line 29 – page 10, line 6 of the earlier application Serial No. 08/261,388, which the instant application claims priority of and is incorporated by reference in the instant application. It is noted that the same description has also been inserted into the instant specification as described above under the section titled "Amendments to the Specification".

Claims 12 and 26 have been cancelled as the subject matters thereof have been incorporated into claims 7 and 21, respectively.

Claims 10, 11, 13-15, 17, 18, 27, 32, 35 and 38 have been amended to correct dependency languages.

Claim 39 has been cancelled as the subject matter thereof has been combined with that of claim 38.

Applicants submit that the foregoing amendments do not introduce any new matter to the original application as filed. As amended, claims 7, 9-11, 13-18, 21, 23-25, 27, 29-32 and 34-38 are currently pending.

Rejection under 35 U.S.C. § 102

Claims 7, 9-18, 21, 23-27, 29-32 and 34-39 are rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Fodor et al. (U.S. Pat. No. 6,610,482, "**Fodor**"). Applicants respectfully traverse this rejection.

Claims 7, 21, 34 and 36 have been amended to define a hydrophobic coating or surface material upon which the DNA sequences (or probes) are spotted. As amended, the instant claims are directed to a substrate with a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface, which substrate comprises a microarray of distinct pre-synthesized polynucleotides, wherein the microarray has a density of 1,000 or more discrete regions of polynucleotides per cm^2 of substrate surface, and the polynucleotides contained in each discrete region are at least 50 subunits in length. Claims 12, 26 and 39 have been cancelled.

Fodor relates to various uses of microarrays (or substrates comprising microarrays). As to production of the microarrays, **Fodor** primarily describes the VLSIPS™ Technology (Very Large Scale Immobilized Polymer Synthesis) and an automated attachment of specific probes using the caged biotin methodology (i.e., attachment of reagents in a positionally defined matrix pattern). **Fodor** does not teach or suggest a substrate with a surface consisting of a hydrophobic

surface formed by the surface material or by a coating applied to the surface, which substrate comprises a microarray of distinct pre-synthesized polynucleotides having a density of 1,000 or more discrete regions per cm^2 of substrate surface with each polynucleotide contained in each discrete region being at least 50 subunits in length.

In particular, **Fodor** describes the following regarding its substrate surface:

> Surfaces on the solid substrate will usually, though not always, be composed of the same material as the substrate. Thus, the surface may be composed of any of a wide variety of materials, for example, polymers, plastics, resins, polysaccharides, silica or silica-based materials, carbon, metals, inorganic glasses, membranes, or any of the above-listed substrate materials. In some embodiments the surface may provide for the use of caged binding members which are attached firmly to the surface of the substrate in accord with the teaching of copending application Ser. No. 404,920, previously incorporated herein by reference. Preferably, the surface will contain reactive groups, which could be carboxyl, amino, hydroxyl, or the like. Most preferably, the surface will be optically transparent and will have surface Si--OH functionalities, such as are found on silica surfaces. See Col.

The above description suggests that **Fodor**'s surface will have hydrophilicity functionalities, at least under the most preferable situation. This means that **Fodor**'s surface does not call for uniform hydrophobicity as required by the present invention. In contrast, the instant claims as amended refer to a substrate surface consisting of a hydrophobic surface.

In addition, the instantly claimed substrate is made by a process wherein the polynucleotides comprised in aqueous reagents are spotted directly onto the hydrophobic surface, and wherein the interaction of the hydrophobic surface and the aqueous reagents limits spreading of the reagents and thereby controls spot size. In contrast, **Fodor** does not teach or suggest such probe deposition process.

It is noted that claim amendments similar to the foregoing ones were made in the earlier application Serial Nos. 08/688,488 (issued as U.S. Pat. No. 7,323,298) and 08/514,875 (now allowed). In those earlier cases, the amendments rendered the claims therein free of art and thus patentable. It is also noted that on page 18 of the present Action, the Examiner indicates that such amendments may place the instant claims in condition for allowance.

With respect to the Examiner's Response to Arguments on pages 6-9 of the present Action, Applicants wish to present the following remarks.

The Examiner insists that the effective filing date of **Fodor** is December 6, 1990. This date is the earliest in the priority chain as identified in the cover page of **Fodor** before there was a continuation-in-part application. In detail, **Fodor** is identified as continuation of U.S. Pat. No. 6,197,506 ("the '506 patent"), which is a continuation of U.S. Pat. No. 5,800,992 ("the '992 patent"). Applicants again contend that **Fodor** is not entitled to the benefit of December 6, 1990 when considering the element of "greater than 50 monomers in length" as recited in claims 40 and 56 thereof for the reasons previously presented in their responses of September 14, 2006, February 22, 2007 and October 23, 2007 as well as further discussed below.

On page 7 of the present Action, the Examiner states that **Fodor** "expressly incorporates by reference (first paragraph of the specification) all parent documents from which the drawing are taken" and that whether **Fodor** "is a continuation-in-part or a continuation does not alter the facts that (1) the '482 patent is entitled to the effective filing date for all that the '992 patent teaches because the '482 properly claims priority to the '992 patent and (2) the entire teaching of '992 patent is incorporated by reference in the '482 patent".

In response, Applicants first wish to point out that **Fodor** contains additional drawings that are not taken from the parent documents, i.e., the '506 patent and the '992 patent, contrary to the Examiner's above statement.

Secondly, although not disputing that **Fodor** expressly incorporates by reference the entire teaching of the '992 patent and that **Fodor** is entitled to the effective filing date for all that the '992 patent teaches, Applicants do not agree with the Examiner on what the '992 patent teaches, in particular, whether or not the '992 patent actually teaches the element of "greater than 50 monomers in length" as recited in claims 40 and 56 of **Fodor**. Clearly, the answers to the above questions would determine whether or not **Fodor**'s claims 40 and 56 are entitled to the effective filing date of the '992 patent.

As repeatedly argued previously, the '992 patent provides a plurality of reagents attached to a solid surface, which reagents are capable of specifically binding to a predetermined subunit sequence of a preselected multi-subunit length having at least three subunits. In some embodiments, the subunit sequence is a polynucleotide or a polypeptide, in others the preselected multi-subunit length is five subunits and the subunit sequence is a polynucleotide sequence. In still other embodiments, the specific reagent is an oligonucleotide of at least about five nucleotides. *See*, Col. 2, line 60 thru Col. 3, line 10 thereof. The '992 patent does not indicate a specific length of 50 subunits or provide a microarray of polynucleotides with a length of 50 subunits for each polynucleotide. Obviously "at least three subunits", "five subunits" or "oligonucleotide of at least about five nucleotides" as taught by the '992 patent does not equate to "at least 50 subunits" as claimed in the instant application.

Like **Fodor**, the '992 patent primarily describes two methods of producing microarrays, i.e., the VLSIPS™ Technology or the caged biotin methodology. As repeatedly argued

previously, the '992 patent suggests that production of an array of 50-mers (even if the array does not comprise all possible 50-mers) would be impractical as the astronomic number of probes that must be synthesized on a matrix would certainly exceed the size and resolution limits of the matrix provided by the '992 patent. *See* Col. 19, lines 36-38; Col. 20, lines 62 – Col. 21, line 7; Col. 22, lines 6-12. That means, synthesis of arrays of 50-mers using the VLSIPS™ Technology as taught by the '992 patent would undoubtfully be disadvantageous, if not impossible.

Also as repeatedly argued previously, the '992 patent teaches attaching pre-synthesized probes onto the array surface in addition to the VLSIPS™ Technology. *See* Col. 27, lines 20-30. Although it teaches that isolated probe may be attached by an automated process to the matrix, the '992 patent does not actually teach or suggest that an array of isolated probes that are at least 50 subunits in length has actually been achieved. In fact, with the term "may be", the '992 patent indicates that the attachment of isolated probes to the matrix at defined positions by using the caged biotin methodology had not actually been achieved at the time of its filing. In addition, the '992 patent cites Serial No. 07/612,671 for the caged biotin methodology, which describes immobilization of anti-ligands such as oligonucleotides. Even if the attachment of isolated probes to the matrix using the caged biotin methodology were achieved, Serial No. 07/612,671 ("the '671 application") does not provide an achieved microarray of polynucleotides with a length of at least 50 subunits for each polynucleotide or a microarray with an achieved density of at least 1,000 discrete regions of polynucleotides per cm^2.

The Examiner states, on page 8 of the present Action, that the '671 application is cited for what it teaches, i.e., probe attachment. Although not disputing such statement, Applicants wish to submit that the only teaching regarding the caged biotin methodology in the '992 patent

is the citation of the '671 application. It is reasonable that one would look to the teachings of the '671 application to determine what the status of the prior art was regarding the caged biotin methodology. Without any additional teachings or data presentation therein of use of such methodology other than the citation of the '671 application, the '992 patent does not disclose immobilization of probes having at least 50 nucleotides using the caged biotin methodology.

The Examiner insists that arguments regarding complete n-mers are not commensurate in scope with the instant claims. Applicants again respectfully disagree. Although they are not limited to complete n-mers, the instant claims encompass complete n-mers as also acknowledged by the Examiner. In fact, as instantly claimed, the DNA sequences contained in each discrete region of the microarray can have either the same or different lengths as long as each of the DNA sequences is at least 50 subunits long. That is, the scope of the instant claims encompasses both an array of complete n-mers with n being at least 50 and an array that contain DNA sequences of different lengths (not complete n-mers) with each sequence being at least 50 subunits long. As such, arguments regarding complete n-mers are indeed relevant to the scope of the instant claims.

The Examiner insists that **Fodor** teaches arrays having probes of 50 nucleotides. Applicants again argue that the issue at hand is not whether **Fodor** teaches probes having 50 nucleotides; rather, the issue is whether the earlier applications of **Fodor** teach probes having 50 nucleotides because the Examiner relies on those earlier applications for the effective filing date for **Fodor** and for the present rejection. In this regard, Applicants again point out that the earlier application, i.e., the '992 patent, does not disclose the subject matter of arrays of probes having 50 nucleotides (complete or not complete 50-mers) as repeatedly discussed previously as well as discussed above.

In fact, the '992 patent does not disclose anywhere explicitly or unambiguously that a microarray of 50-mers, whether or not comprising all possible permeation sequences, is actually produced using the VLSIPS™ Technology or the caged biotin methodology. This is also apparent from the level of actually "achieved microarrays" in the '992 patent as indicated in Col. 66, line 65 thru Col. 67, line 9: what was actually achieved is the synthesis on glass of eight trimers of C and T. This is clearly not at the level of the microarray of claims 7, 21, 34 and 36 of the instant application.

The Examiner alleges that the only mention of probes of greater than fifty nucleotides in the entire specification of the '992 patent (*see* Col. 28, lines 37-43) "clearly teaches use of their arrays wherein probes greater than 50 nucleotides are preferred". Applicants respectfully disagree. The above passage discusses the hybridization conditions when using a microarray of probes, e.g. in the context of Southern Hybridization. A situation "with probes of greater than, e.g., about fifty nucleotides" and "different sized probes" is outlined. This outlined situation relates to the stability of different sized probes under certain hybridization conditions and not to an achieved microarray of 50-mer probes. In addition, the above passage does not suggest that arrays of probes greater than 50 nucleotides are preferred; rather, it teaches that probes of greater than about 50 nucleotides will hybridize irrespective of imperfect complementarity under typically higher salt and lower temperature condition. Depending on hybridization conditions, probes of different lengths are selected.

In view of the foregoing remarks, at the time of its filing, i.e., June 25, 1996, the '992 patent had not actually achieved a microarray of polynucleotides each having more than 50 monomeric units, wherein the polynucleotides are either synthesized *via* the VLSIPS™

Technology or pre-synthesized and individually isolated, and subsequently attached to a substrate surface using the caged biotin methodology.

As such, **Fodor**, cited by the Examiner, should not have been entitled to the priority date of the '992 patent at least when considering the technical feature of "greater than 50 monomers in length" as recited in claims 40 and 56 thereof, because the '992 patent, as a whole, does not teach such technical feature. Rather, the effective filing date for **Fodor** should be later than the filing date of the '992 patent, that is, later than June 25, 1996, as further evidenced by the fact that **Fodor**'s specification includes a significant addition when compared to that of the '992 patent or the later '506 patent as discussed above. As such, it would appear that **Fodor**'s claims are only entitled to the priority date of **Fodor** itself, i.e., April 24, 2000.

Applicants again reiterate from the previous responses that, when considering the technical feature of at least 50 subunits, instant claims 7, 21, 34 and 36 are entitled to at least the filing date of parent application Serial No. 08/477,809, that is, June 7, 1995. Because the instant claims are at least entitled to the priority date of June 7, 1995, which date is well before the priority date of **Fodor** as discussed above (i.e., later than June 25, 1996), Applicants again argue that **Fodor** is not a valid prior art reference under 35 U.S.C. §102(e) for claims 7, 21, 34 and 36 of the instant application and as such, the rejection of instant claims under 35 U.S.C. § 102(e) over **Fodor** should be withdrawn.

Nevertheless, Applicants have amended the claims as suggested by the Examiner in order to move the case forward with a notice of allowance. With the foregoing amendments, Applicants submit that the instant claims are now in condition for allowance.

Claims 7, 9-15, 17-18, 21, 23-27, 29-32, 34-35 and 38-39 remain rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Winkler et al. (U.S. Pat. No. 5,677,195, "**Winkler**"). Applicants respectfully traverse this rejection.

Claims 7, 21, 34 and 36 have been amended to define a hydrophobic coating or surface material upon which the DNA sequences (or probes) are spotted. As amended, the instant claims are directed to a substrate with a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface, which substrate comprises a microarray of distinct pre-synthesized polynucleotides, wherein the microarray has a density of 1,000 or more discrete regions of polynucleotides per cm^2 of substrate surface, and the polynucleotides contained in each discrete region are at least 50 subunits in length. Claims 12, 26 and 39 have been cancelled.

Winkler discloses a method and device for forming large arrays of polymers on a substrate. In particular, **Winkler** discloses a process of monomer-by-monomer synthesis of polymers to provide a plurality of polymer sequences on a single substrate, wherein the deposition of monomers is carried out by using a deposition device to effect the formation of a polymer in a pre-defined region. That is, the arrays of polymers are formed through an *in situ* process.

As to the substrate surface and each predefined region thereon, **Winkler** teaches a surface that is patterned with predefined reaction region formed by a hydrophilic material and surrounded by a region formed by a hydrophobic material as seen from the following description therein:

> In preferred embodiments, the reactant solutions in each predefined region are prevented from moving to adjacent regions by appropriate barriers or constraining regions. For example to confine aqueous monomer solutions,

> a hydrophilic material is used to coat the reaction regions, while a hydrophobic material is used in preferred embodiments to coat the region surrounding the individual reaction regions. *See* Col. 22, lines 9-15.

That is, **Winkler**'s substrate uses hydrophobic/hydrophilic boundaries to confine the aqueous reagents within the predefined reaction region. This is in direct contrast to the substrate of the present invention, which has a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface, and the hydrophobic surface prevents spreading of aqueous reagents containing DNA sequences via reagent bead formation.

In addition, the instantly claimed substrate is made by a process wherein the DNA sequences (or probes) are spotted directly onto the hydrophobic surface, and wherein the interaction of the hydrophobic surface and the aqueous reagents limits spreading of the reagents and thereby controls spot size. Furthermore, the instant invention does not modify the hydrophobic surface to create hydrophobic/hydrophilic boundaries to confine the aqueous reagents. In contrast, **Winkler** teaches depositing reactant solutions in each reaction region coated with a hydrophilic material, which solutions are prevented from spreading by hydrophobic barriers. Obviously, **Winkler** discloses a different substrate and a different deposition method from those of the instant invention.

In conclusion, **Winkler** does not anticipate the presently amended claims. It is also noted that claim amendments similar to the foregoing ones were made in the earlier application Serial Nos. 08/688,488 (issued as U.S. Pat. No. 7,323,298) and 08/514,875 (now allowed). In those earlier cases, the amendments rendered the claims therein free of art and thus patentable. Such amendments, as indicated by the Examiner on page 18 of the present Action, may place the instant claims in condition for allowance. As such, Applicants respectfully request that the

rejection of the instant claims under 35 U.S.C §102(e) be withdrawn upon entry and consideration of the foregoing amendments.

Claims 14, 29, 35 and 38-39 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Pinkel et al. (U.S. Pat. No. 5,830,645, "**Pinkel**"). Applicants respectfully traverse this rejection.

The rejected claims are dependent from claims 7, 21, 34 or 36, which, as presently amended, are directed to a substrate with a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface, which substrate comprises a microarray of distinct pre-synthesized polynucleotides, wherein the microarray has a density of 1,000 or more discrete regions of polynucleotides per cm^2 of substrate surface, and the polynucleotides contained in each discrete region are at least 50 subunits in length. The rejected claims automatically carry over the limitations of their base claims. Claim 39 has been cancelled.

Pinkel discloses comparative fluorescence hybridization to nucleic acid arrays, which array is defined as a plurality of target elements, each comprising one or more target nucleic acid molecules immobilized on a solid surface to which probe nucleic acids are hybridized (*see* Col. 3, lines 52-54.) As to the solid surface, **Pinkel** teaches that it can be a membrane, glass, plastic, or a bead, and that a wide variety of organic and inorganic polymers, as well as other materials, both natural and synthetic, may be employed as the material for the solid surface. **Pinkel** further cites U.S. Pat. No. 5,143,854 ("the '854 patent) to Fodor for array-producing techniques. *See* Col. 7, line 43 thru Col. 9, line 33. It is noted that priority of the '854 patent is claimed in the above-discussed '992 patent.

Pinkel is silent on a substrate with a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface. Neither does **Pinkel** teach spotting probe-containing aqueous reagents directly onto the hydrophobic surface, and wherein the interaction of the hydrophobic surface and the aqueous reagents limits spreading of the reagents and thereby controls spot size. Also as discussed above, **Fodor**, which claims priority of the '992 and 854 patents, does not teach or suggest the same kind of substrate or probe deposition method either.

It is noted that claim amendments similar to the foregoing ones were made in the earlier application Serial Nos. 08/688,488 (issued as U.S. Pat. No. 7,323,298) and 08/514,875 (now allowed). In those earlier cases, the amendments rendered the claims therein free of art (including **Pinkel**) and thus patentable. Such amendments, as indicated by the Examiner on page 18 of the present Action, may place the instant claims in condition for allowance.

Additionally, Applicants again contend that **Pinkel** does not teach or suggest individual disposition of each target element to each discrete region of its nucleic acid array. As argued previously in Applicants' response dated October 23, 2007, **Pinkel** teaches the "smallest" disposition unit being a mixture of target nucleic acids of different lengths and sequences instead of an individual DNA sequence (*see* Example 1). Lacking any other descriptions regarding the disposition unit therein, it is reasonable for one to look up to the working example of **Pinkel** to determine the nature of target nucleic acids that are deposited to the array surface.

In view of the foregoing amendments and remarks, **Pinkel** does not anticipate the instant claims as amended. As such, Applicants respectfully request that the rejection of claims 14, 29, 35 and 38-39 under 35 U.S.C. §102(e) be withdrawn.

Rejection under 35 U.S.C. § 103

Claims 7, 9-18, 21, 23-27, 29-32 and 34-39 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Barrett et al. (U.S. Pat. No. 5,252,743, "**Barrett**") in view of **Winkler**. Applicants respectfully traverse this rejection.

Claims 7, 21, 34 and 36 have been amended to define a hydrophobic coating or surface material upon which the DNA sequences (or probes) are spotted. As amended, the instant claims are directed to a substrate with a surface consisting of a hydrophobic surface formed by the surface material or by a coating applied to the surface, which substrate comprises a microarray of distinct pre-synthesized polynucleotides, wherein the microarray has a density of 1,000 or more discrete regions of polynucleotides per cm^2 of substrate surface, and the polynucleotides contained in each discrete region are at least 50 subunits in length. Claims 12, 26 and 39 have been cancelled.

Barrett discloses immobilization of anti-ligands on surfaces. **Barrett** also discloses that the surfaces are covered with caged binding members that can be converted to activated binding members in predefined regions upon selective irradiation. That is, **Barrett**'s substrate surface is a patterned surface, either comprising activated binding members at the predefined regions thereon (prior to immobilization of anti-ligands) or comprising immobilized anti-ligands at the predefined regions thereon (post immobilization of anti-ligands). Applicants respectfully submit that **Barrett**'s substrate surface, under either situation, is different from that of the present invention for the reasons stated below.

Barrett teaches "[p]referably, the surface will contain reactive groups, which could be carboxyl, amino, hydroxyl, or the like. Most preferably, the surface will be optically transparent and will have surface Si--OH functionalities, such as are found on silica surfaces" (*see*, Col. 8,

lines 35-40). Such teaching clearly suggests that **Barrett**'s surface will have hydrophilicity functionalities, at least under the most preferable situation. This means that **Barrett**'s surface does not call for uniform hydrophobicity as required by the present invention. Even with the patterning added to the surface, either initially from selective irradiation of caged binding members at predefined regions or later from immobilization of anti-ligands to the activated binding members at the predefined regions, the patterned surface of **Barrett** still does not call for uniform hydrophobicity. In contrast, the instant claims as amended refer to a substrate surface consisting of a hydrophobic surface.

As discussed above, **Winkler** discloses a different substrate and a different deposition method from those of the instant invention as presently claimed. That is, **Winkler** does not compensate the above-mentioned deficiency of **Barrett**.

It is noted that claim amendments similar to the foregoing ones were made in the earlier application Serial Nos. 08/688,488 (issued as U.S. Pat. No. 7,323,298) and 08/514,875 (now allowed). In those earlier cases, the amendments rendered the claims therein free of art (including **Barrett**) and thus patentable. Such amendments, as indicated by the Examiner on page 18 of the present Action, may place the instant claims in condition for allowance.

With respect to the Examiner's Response to Arguments, Applicants present the following remarks.

The Examiner alleges that Applicants' previous arguments "appear to be asserting that the claim requires a density of 1,000 or more probes per cm^2 over the entire surface of the substrate. However, the claims are not so limited. The claims merely require 1,000 or more probes at a density of 1,000 or more probes per cm^2". In response, Applicants again submit that (1) the Examiner's previously cited passages of Col. 20, lines 20-25; Col. 29, lines 5-10;

Example J and Fig. 4 of **Barrett** do not have anything to do with array density. (2) Although disclosing the sizes of exposed area (or irradiated region) on the substrate as well as spaces between activated regions (*see* Col. 18, line 67 thru Col. 19, line 4), **Barrett** does not disclose any density element. (3) **Barrett** does not disclose the number of irradiated regions per cm^2 of the substrate surface. Since anti-ligands would be applied to each of the irradiated regions on the substrate surface, **Barrett** does not disclose the number of anti-ligands that are applied to per cm^2 of the substrate surface. That is, **Barrett** does not disclose any density element.

In addition, the Examiner insists that **Barrett** suggests oligonucleotides of at least 50 subunits because it clearly states that "the immobilized molecules (e.g. oligonucleotides) are 'typically are greater than about 1kD' (Column 20, lines 45-60)". In response, Applicants again argue that the above passage does not suggest "oligonucleotides of at least 50 subunits" as alleged by the Examiner because the size of anti-ligands (particularly in reference to proteins) being greater than 100 daltons does not translate into size of oligonucleotides being at least 50 subunits.

In view of the foregoing amendments and remarks, even if motivated to combine the teachings of **Barrett** and **Winkler**, one skilled in the art would not have made the present invention as instantly claimed. As such, Applicants respectfully request that the rejection of claims 7, 9-18, 21, 23-27, 29-32 and 34-39 under 35 U.S.C. §103(a) be withdrawn.

Nonstatutory Obviousness-Type Double Patenting

Claims 7, 9-18, 21, 23-27, 29-32 and 34-39 remain rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 36-47 of application Serial No. 08/688,488.

In response, Applicants first note that the application Serial No. 08/688,488 has since issued as U.S. Patent No. 7,323,298. Applicants submit a terminal disclaimer to overcome the present double patenting rejection.

Additional Comments

On page 18 of the present Action, the Examiner suggests that the claims may be placed in condition for allowance if:

1- the claims are amended to define a hydrophobic coating or surface material upon which the probes are spotted.

2- the claims are amended to define probes spotted onto the hydrophobic surface.

3- canceling claims drawn to covalent immobilization

4- filing of a terminal disclaimer over allowed application 08/688,488.

In response, Applicants submit that the instant claims have been amended based on the Examiner's above suggestions of items 1, 2 and 4. However, with respect to item 3, Applicants submit that the subject matter of covalent immobilization is indeed supported by the instant specification, *see* page 13, lines 1-14; page 32, lines 15-31; page 42, lines 1-5. Also, the claims drawn to covalent immobilization, i.e., claims 13, 14, 27 and 29, are dependent claims and automatically carry over the limitations of their base claims, i.e., claims 7 and 9. With the foregoing amendments, the claims drawn to covalent immobilization should also be free of art and thus patentable.

In conclusion, Applicants respectfully submit that the instant claims, as presently amended, are in condition for allowance. If any issues remain, the Examiner is encouraged to call the undersigned.

This paper is filed timely. No extension fees are believed to be due. The Commissioner is authorized to deduct terminal disclaimer fees of $130 for large entity from Howrey LLP Deposit Account No. 08-3038/12665.0009.CNUS01. Should any additional fees be required for any reason relating to this document, the Commissioner is authorized to deduct such fees from the same deposit account.

Respectfully submitted,

/j. wendy davis/

J. Wendy Davis, Ph.D.
Reg. No. 46,393

Agent for Assignee
THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Customer No. 23369

HOWREY LLP
1111 Louisiana, 25th floor
Houston, TX 77002
(713) 787-1512 (Direct)

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